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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,046	08/21/2003	Alvin Mark Terry	41942-05541	6537

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EXAMINER

WINAKUR, ERIC FRANK

ART UNIT	PAPER NUMBER
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3768

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
4a) Of the above claim(s) 10-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1 - 9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 1 appears to be directed to processing data to determine physiological information rather than a practical application of the physiological information. Claim 1 does not result in a physical transformation nor does it appear to provide a useful, concrete and tangible result. Specifically, it does not appear to produce a tangible result because merely examining a plethysmographic signal to obtain information therefrom is nothing more than a computation within a processor. It fails to use or make available for use the result of the determination to enable its functionality and usefulness to be realized. Additionally, the asserted practical application in the specification is for outputting/reporting the results. The practical application is not explicitly recited in the claims nor does it flow inherently therefrom. Therefore, claim 1 appears non-statutory.

In addition, dependent claims 2 - 9, while reciting further limitations, fail to explicitly or inherently recite the practical application.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claims 1 - 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al. (6,002,952 - previously cited) in view of Noll. Diab et al. teach an oximeter arrangement (Figure 12; column 15, line 37 - column 16, line 34) for processing red and infrared light samples including performing Fourier transforms on the measured data. The frequency domain information can be further processed to extract the pulse rate information (see Figure 12 elements 1260, 1252 and Figure 17 and the description of "Transform Based Pulserate Detection" which begins in column 20). The Fourier transforms can be implemented with fast Fourier transforms (column 22, lines 54 - 59). Diab et al. teach all of the features of the claimed invention except that log transformations are applied to the frequency domain signals to provide log transformed frequency domain signals. Noll teaches a cepstrum analyzer, using the same principles of Diab, that allows identification of a peak by use of logarithmic transforms of frequency transformed values (column 2, line 38 - column 4, line 48). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Diab et al. to include applying a log transformation to the frequency domain data, as taught by Noll, since this allows identification of the desired spectral peak that relates to pulse rate. With regard to claims 3, 4, 6, and 7, Diab et al. teach that fast Fourier transforms may be used in processing the signals, but do not teach particular details of the processing. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the processing of the fast Fourier transforms with known steps, including adjusting the size of the transformed portion to correspond with a desired signal under analysis. Further, for analysis of a periodic signal, such as heart rate, it is known to limit

the analyzed data to data that corresponds with the period of the signal to obtain the desired results.

Response to Arguments

5. Applicant's arguments with respect to claims 1 - 9 have been considered but are moot in view of the new ground(s) of rejection.

6. It is noted that Applicant contends that the teaching of column 22, line 66 - column 23, line 3 of the Diab reference (see remarks filed 2/27/06 in the final paragraph on page 11) teaches away from a rejection such as that set forth in paragraph 2 above. However, this teaching of the Diab reference must be interpreted with proper consideration of its context, and cannot be understood without such a consideration. When reviewed in such a manner, it is clear that Diab is describing analysis related to removal of noise from an input signal. It is incorrect to extrapolate that the noted comment was meant to teach away from use of a log transformation in the pulse rate (Figure 17) analysis. As such, the rejection set forth above is not taught away from, and is properly set forth.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric F. Winakur whose telephone number is 571/272-4736. The examiner can normally be reached on M-Th, 7:30-5; alternate Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571/272-4740. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric F Winakur
Primary Examiner
Art Unit 3768

15 May 2006